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| EXAMINER |
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LIN, ANDY C

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| ART UNIT | PAPER NUMBER |
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2622

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/537,454

Applicant(s)

SHIBAYAMA, HIROAKI

Examiner

Andy C. Lin

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

06/03/2005

- 1) ☒ Responsive to communication(s) filed on ~~08/03/2003~~.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Regarding **claim 3**, the phrase "a vacant time period in a time period during which three frames of image data are processed in said resize processing unit and said format transforming unit" contradicts the language in claim 1 where the vacant time period was defined as a "period in which no process is performed in said resize processing unit and said format transforming unit." It is suggested for the phrase in question to be changed to "a vacant time period in which no process is performed in said resize processing unit and said format transforming unit, and in non-vacant time periods three frames of image data are processed in said resize processing unit and said format transforming unit" and will also be treated as to mean such in this action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-7** are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,697,106 B1 to *Saito* in view of US Patent No. 5,867,214 to *Anderson et al.*

As for **claim 1**, *Saito* discloses a camera-equipped mobile terminal **FIG 1**, comprising a camera module (**FIG 1 without 20, 24, 26 and 34**), a control unit **30**, a display device **26**, an interface unit **24 and 34** arranged between said camera module, said control unit and said display device,

said camera module including a camera sensor **10** that records with a resolution of a first number of pixels and provides a picture signal in a first format corresponding to a picture that has been shot (Column 5, lines 7-11), a digital signal processor **12, 16, 18, 30, 32, 36, 38, 40, 44, and 52** that performs image processing on said picture signal and an external memory **20** having a power supply that is turned off in a mobile camera mode as in when this removable memory is removed it becomes disconnected from the power supply,

said digital signal processor including an analog/digital converter (**FIG 2:200**) that converts said picture signal to a first image data (Column 5, lines 7-11), an internal memory **36**, an encoder **16** that performs compression-coding processing to convert said first image data into a second image data, a resize processing unit **30** that resizes said first image data into a third image data having a second number of pixels (Column 5, lines 12-23), and a format transforming unit that transforms said third image data into a fourth image data in a second format (Column 5, lines 35-48) and supplies the fourth

image data to said interface unit via a first bus **22** to display said fourth image data on said display device for a camera finder (Column 5, lines 12-15),

wherein said encoder, executes, after said first image data has been temporarily buffered into memory, the compression-coding process on said first image data read from said memory to produce said second image data in a time-division manner using said internal memory as buffer (Column 8, line 64 - Column 9, line 9), during a vacant time period in which no process is performed in said resize processing unit and said format transforming unit since these processes are performed in the "movie mode" and the earlier mentioned processes are performed during the "record mode," as in the two modes are exclusive so during a record mode the movie mode is not active and thus there is a vacant time period in the processes involved for the movie mode, namely those that involve the resize processing unit and said format transforming unit, while the processes in the record mode, those by the encoder and the compression-coding, are active (Column 3, lines 36-59), furthermore it is stated that multiplex processing is involved which allows compression and recording while allowing images to be displayed on the viewfinder rapidly (Column 15, lines 53-65) and also it then stores said second image data in memory (Column 9, line 8-15), and

said control unit captures said second image data stored in memory via a second bus **14** and said interface unit (Column 15, lines 8-13), as required.

Saito however fails to teach a mode of storing the first image data in an external memory, taking that data to be processed and then storing the second image data to

the external memory, as well as a mode where the first image data is stored into an internal memory, taken to be processed and the second image data stored into the internal memory. *Saito* does mention the use of "economy mode" which is useful when memory is scarce (Column 5, lines 28-34) and also mentions that the internal memory is not very large (Column 8, lines 32-49).

Anderson et al. however teaches the use of the external memory (flash memory 64) to store the first image data that was buffered into the internal memory (RAM Disk 74), have it processed and then having the second image data be stored into the external memory or even just the internal memory (Column 2, lines 9-18 and Column 4, lines 51-61).

By applying the teaching of the *Anderson* reference, the external memory in the *Saito* reference could be used for the above mentioned modes, where an economy mode would be one where memory is scarce, where the removable external memory is not present, and when it is present would buffer the first image data to the external memory as well as store onto it as taught by *Anderson*. When the control unit fetches the stored second image data it would therefore capture from the internal memory when in the economy mode, also known as the mobile camera mode, and from the external memory when in the digital camera mode.

The *Saito* reference and the *Anderson* reference are analogous arts because both involve digital cameras and the capturing and processing of images. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to apply the

teaching of *Anderson* in the camera of *Saito* for the motivation mentioned by *Anderson* which is to increase the image capture rate by use of the additional memory buffer (Column 2, lines 1-8).

As for **claim 2**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to claim 1, wherein said external memory has a multi-buffering configuration in said digital camera mode was disclosed in the rejection to claim 1 where image data was first buffered into the internal memory and then into the external memory when in a digital camera mode, thus having a multi-buffering configuration.

As for **claim 3**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to claim 1, wherein said encoder, in said digital camera mode and said mobile camera mode, performs said compression-coding processing of one frame of image data during a vacant time period in which no process is performed in said resize processing unit and said format transforming unit, and in non-vacant time periods three frames of image data are processed in said resize processing unit and said format transforming unit is not explicitly disclosed by *Saito*. *Saito* does however mention using one bus for recording image data for still pictures and using another bus for displaying moving pictures on a monitor (Column 15, lines 57), and further it is stated that the two buses is used to execute multiplexing processing that "the compressing and recording procedure can therefore be efficiently executed while a picture represented by the above image data can be rapidly displayed on the monitor" (Column 15, lines 62-65).

This suggests that after data is processed to be displayed onto a monitor, data can be processed for recording during this period when data is being sent to the monitor, as in the period when there is no processing for the data to be displayed onto the monitor.

It would have been obvious to one of ordinary skill in the art prior to applicant's invention to display consecutive frames onto the monitor while performing compression-coding processing of one frame so as to allow smooth moving picture to be displayed, whether it'd be three or more.

As for **claim 4**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to claim 1, wherein, in said digital camera mode and said mobile camera mode, when continuous shooting, in which still pictures are continuously taken, is required, said digital signal processor, while said control unit is capturing a frame of said second image data, starts to buffer the next frame of said second image data into said external memory is disclosed by *Saito* (Column 13, line 59 - Column 14, line 4).

As for **claim 5**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to any one of claims 1 through 3, wherein when processing moving image data in said digital camera mode, said digital signal processor successively reads said first image data temporarily stored in said memory for every plurality of frames and successively stores said second image data, subjected to the compression-coding process performed by said encoder is discussed by the *Saito* reference, and where the said memory could be an external memory was taught by the *Anderson* reference.

The combination of *Saito* and *Anderson*, however fails to teach that on completion of said compression-coding process, said digital signal processor notifies said interface unit and said control unit that the compression-coding process has been completed for every key frame of said second image data.

Official Notice is taken that both the concept and the advantages of notifying a control unit and any other existing units, such as an interface unit, that a specific process is completed is well known in the art. It would have been obvious to one of ordinary skill in the art prior to applicant's invention to have the digital signal processor notify other units when the compression-coding process is complete each time for it to begin a different process.

As for **claim 6**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to any one of claims 1 through 3, including a streaming, supply mode in which, when moving image data are processed in said digital camera mode, a dedicated bus **22** is provided between said camera module and said interface unit, through which said digital signal processor supplies said moving image data to said interface unit as streaming data, as requested by said control unit (*Saito*: Column 7, lines 34-46).

As for **claim 7**, *Saito* in view of *Anderson* teaches a camera-equipped mobile terminal according to claim 6, wherein said interface unit further comprises a first-in first-

out memory to capture said moving image data was disclosed by *Saito* as **34** in **FIG 1** (Column 6, lines 49-52).


Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy C. Lin whose telephone number is (571) 270-3310. The examiner can normally be reached on Mon-Thurs: 9:30AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ACL/


NGOC-YEN VU
SUPERVISORY PATENT EXAMINER